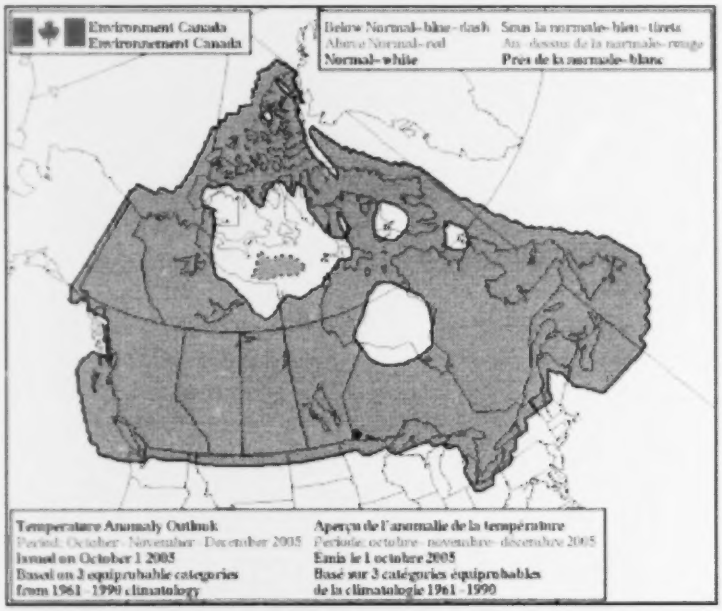
Column 443

Seasonal forecasts getting better all the time

by Sarah Locke

As snow creeps down the mountainsides, people's interest in what the winter might bring usually climbs higher. According to Environment Canada's preliminary winter forecast, winter will be mild -- once again -- in the west.

David Phillips, Environment Canada's senior climatologist, says it's not easy predicting the weather in a northern country like Canada, but they are getting better at the task all the time.


Environment Canada
Environnement Canada
Below Normal- blue - dash
Above Normal- red
Normal- white
Sous la normale- bleu - tirets
Au - dessus de la normale- rouge
Près de la normale- blanc
Temperature Anomaly Outlook
Issued on October 1 2005
Based on 3 equiprobable categories
from 1961 - 1990 climatology
Aperçu de l'anomalie de la température
Emis le 1 octobre 2005
Basé sur 3 catégories équiprobables
de la climatologie 1961 - 1990

The seasonal forecasts issued by Environment Canada clearly indicate the warmer than normal temperatures expected for most of the country this winter

(image: Environment Canada)

"Even five to eight years ago, I would probably have said 'Do not trust the seasonal forecast, or at least do not bet the family farm on it.' But now it is markedly better," he says.

Monitoring of ocean surface temperatures, one of the best sources of climate data, has improved significantly. "As the oceans go, so goes the weather," he says. "The oceans have memory and the warm water you see there today will likely be there for awhile."

For the last decade, powerful computers have churned out the seasonal forecasts, taking almost a week to process the reams of data needed for each one. Before computers took over the job, Phillips led the team that put together the forecasts, using what he calls "a back of the envelope approach."

"It used to be that Dave and the guys would get together in a room and lock the doors and look over what we would call an analogue situation where you look for similar patterns," he says.

"For example if we had just finished our third summer of record-breaking heat, we might say, 'Well what was the fall like after those record hot summers.' That sort of thing would guide the forecast."

"And there was a secrecy to it as some people played the market based on the forecast. We had to release it at exactly the same time across the country because some people would use the information to their advantage if they got it early, particularly in the winter season."

Timing the release of the forecasts is less of a problem now that they are generated by computers, which also can process large amounts of information more inexpensively than humans. But Phillips says the human touch is still needed when forecasts turn out to be wrong.

"A computer churns it all out, but it does not tell you why. We could say what our reasons were," he says. "The media always wants to know why things happen, and when the computer does it you are left scrambling to figure out what went wrong."

Despite the progress that has been made in predicting the weather, Phillips prefers the word "outlook" when looking three months into the future. "I don't like to call it a forecast. I like to refer to it as giving the character or personality of what the season will be like," he explains.

The accuracy of the computer forecasts has never been compared to the ones produced by meteorologists huddling in a locked room, but Phillips thinks their tracks records are probably similar.

"We got it right when the computer got it right; we did not embarrass ourselves."

Colour-coded maps show the forecasts for temperature and precipitation for a three-month period. A separate set of maps shows how often the forecasts have been correct historically.

Since there are three categories to the forecast -- normal, above normal and below normal -- statistically, any random forecast has about a 33 percent chance of being correct. For a forecast to be statistically significant it has to be correct 45 percent of the time.

Both computers and humans have been most accurate during years when El Nino controlled the weather patterns. "We have good skill level when it comes to El Nino and such features. We can give a good picture, particularly of winter in the west. In an El Nino year, nine out of 11 winters it will be warmer."

Phillips says the seasonal forecasts for temperature have a better track record than those for precipitation. "Precipitation is something that I never brag about getting right because you are only as good as your next forecast. You could be right for 85 days and then get some drenching rains and it swamps the seasonal results," he says.

"With temperature, you get a value each day, and there tends to be more skill to it," he explains.

Phillips reminds people to remember that the seasonal forecasts are averages, and an outlook forecasting above normal temperatures does not mean that every day -- or month -- will be warmer than normal.

Phillips says the seasonal temperature forecasts often now look like "a Liberal sweep," with a blanket of red, indicating above normal temperatures, covering most of the country.

Despite this pattern, he does not expect Canadian interest in the seasonal forecasts to decrease. "I often think that what defines a Canadian is being worried about winter before the summer is over," he says.

For more information on the Environment Canada forecasts, check the agency's website at www.weatheroffice.ec.gc.ca/saisons.

Environment Canada
Pacific and Yukon Region